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Two new species of *Phialophora* from soil

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Abstract — Two new species, *Phialophora microspora* and *P. nielamuensis*, both from soil in China are described and illustrated. The type specimens (dried cultures) and living cultures are deposited in the Herbarium of Shandong Agricultural University Plant Pathology (HSAUP). Isotypes are kept in the Herbarium of Institute of Microbiology, Academia Sinica (HMAS).

Key words — taxonomy, soil fungi, dematiaceous hyphomycetes

Introduction

Since *Phialophora* Medlar was erected in 1915, 86 epithets have been proposed in the genus (Anonymous 2010). This genus is characterized by possession of pigmented or hyaline colonies, weakly pigmented or hyaline, thin-walled, branched conidiophores or simple phialides (which are discrete, typically flask-shaped, with a distinct collarette), and one-celled, hyaline or slightly pigmented conidia. In the course of a survey of soil dematiaceous hyphomycetes in China, several unusual species of *Phialophora* were collected. Two of them are described as new species, *P. microspora* and *P. nielamuensis*.

Taxonomy

Phialophora microspora Y.M. Wu & T.Y. Zhang, **sp. nov.** Fig. 1

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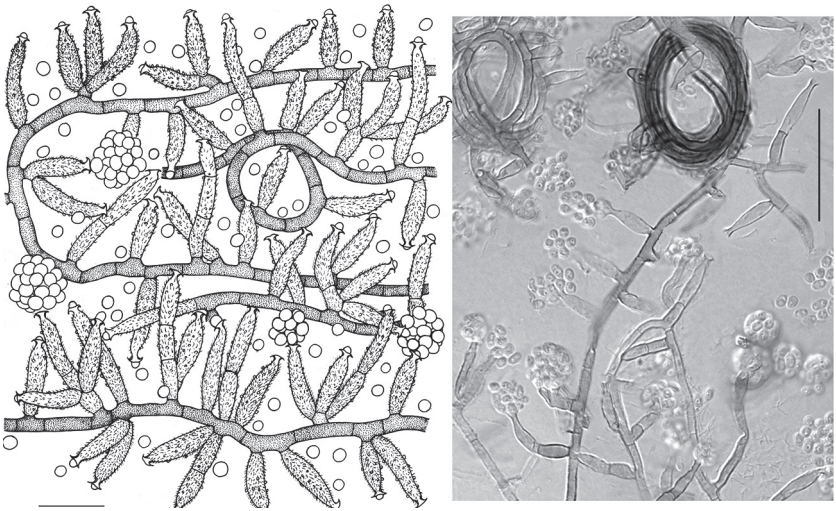
Coloniae in PDA velutinae, leviter radiatis sulcais, griseo-olivaceae. Hyphae ramosae, septatae, olivaceae, laeves vel modice scabrae, 2–3 µm crassae. Conidiophora micronemata vel semi-macronemata, mononemata, erecta, ex hyphis oriunda, simplicia, dilute brunnea, laevia, verrucosa, 30–80 × 4–7 µm. Cellulae conidiogenae monophialidicae, terminales vel laterales, ex hyphis statim et singulatim oriundae, discretae, subcylindricae, gradatim attenuatae versus apicem, subcollari modice angustatae, dilute brunneae, verrucosae, 20–30 × 4–7 µm, nonnumquam percurrenter proliferantiae; colla conspicua, infundibuliformia



F ig. 1. Conidia, conidiophores, and conidiogenous cells of *Phialophora microspora.* Left: drawings. Right: photomicrographs (Bars = 25 μm).

vel ureceolata, paulo-obscura. Conidia unicellularia, globosa vel subglobosa, pallide olivacea, hyalina, laevia, 2–3 × 1.5–2.5 μm, coacervata in mucosa capitula.

Holotype: China. Tibet, Nielamu, from a mountain soil, altitude 2600 m, 14 Sept. 2007, Y.M. Wu, HSAUPII $_{07}$1381, **holotype**; HMAS 196259, **isotype**.

Etymology: The epithet refers to the small conidia of this species.

Colonies on PDA at 25°C for 28 days 3–5 cm diam., velvety, with faint radial furrows, gray-olivaceous. Mycelium mostly superficial, partly immersed. Hyphae branched, septate, smooth or sometime roughened, olivaceous, 2–3 μm wide. Conidiophores semi-macronematous, mononematous, erect, arising from the hyphae, simple or occasionally branched, light brown, verrucose, 30–80 × 4–7μm. Conidiogenous cells monophialidic, terminal and integrated or discrete borne directly on the hyphae, subcylindrical, gradually tapering towards the apex and more or less constricted below the collarette, light brown, verrucose, 20–30 × 4–7 μm, sometimes proliferating percurrently; collarettes conspicuous, funnel to vase-shaped, slightly darker. Conidia one-celled, globose or subglobose, hyaline, smooth, 2–3 × 1.5–2.5 μm, aggregated in slimy heads.

Phialophora microspora resembles *P. richardsiae* (Nannf.) Conant (Conant 1937) and *P. benthica* K.R. Millar (Millar 1990) in conidial colour and shape, but the conidiogenous cells of these species are smooth, and the conidia of *P. microspora* are smaller than those of either *P. benthica* (2.5–4 × 2–2.5 μm) or *P. richardsiae* (2.7–3.3 μm) diam.

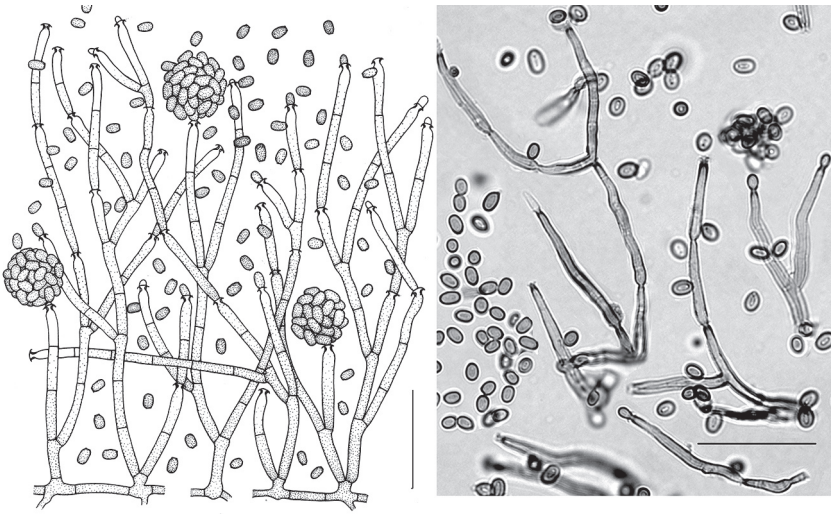


Fig. 2. Conidia, conidiophores, and conidiogenous cells of *Phialophora nielamuensis*. Left: drawings. Right: photomicrographs (Bars = 25 μm).

Phialophora nielamuensis Y.M. Wu & T.Y. Zhang, **sp. nov**. Fig. 2

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Coloniae in PDA velutinae, leviter radiatis sulcatis, griseo-olivacea. Hyphae ramosae, septatae, olivaceae vel dilute bruneae, laeves, 1.5–3 μm crassae. Conidiophora micronemata vel semi-macronemata, mononemata, erecta, ex hyphis oriunda, simplicia, dilute brunnea, laevia, 20–110 × 1.5–3 μm. Cellulae conidiogenae monophialidicae, terminales vel laterales, ex hyphis statim et singulatim oriundae, discretae, subcylindricae, gradatim attenuatae versus apicem, subcollari modice angustatae, dilute brunneae vel subhyalinae, laevia, 15–60 × 1.5–3 μm, nonnumquam percurrenter proliferantiae; colla conspicua, infundibuliformia vel ureceolata, paulo-obscura. Conidia unicellularia, pyriformia, ellipsoidea vel subglobosa, hilo basilari plano, pallide olivacea, laevia, 3.5–5 × 2–2.5 μm, coacervata in mucosa capitula.

Holotype: China. Tibet, Nielamu, from a grassland soil, altitude 2300 m, 14 Sept. 2007, Y.M. Wu, HSAUPII $_{07}$1354, **holotype**; HMAS 196258, **isotype**.

Etymology: in reference to the type locality.

Colonies on PDA at 25°C for 28 days 3–5 cm diam., velvety, with faint radial furrows, gray-olivaceous. Mycelium mostly superficial, partly immersed. Hyphae branched, septate, smooth, olivaceous to light brown, 1.5–3 μm wide. Conidiophores micronematous to semi-macronematous, mononematous, erect, arising from the hyphae, sometimes branched light brown, smooth, 20–110 × 1.5–3 μm. Conidiogenous cells monophialidic, integrated and terminal, or discrete, subcylindrical, gradually tapering towards the apex and more or less constricted below the collarette, light brown to subhyaline, smooth, 15–60

× 1.5–3 µm, sometimes proliferating percurrently; collarettes conspicuous, funnel to vase-shaped, slightly darker. Conidia one-celled, pyriform, ellipsoidal or subglobose, with a flat basal hilum, pale olivaceous, smooth, 3.5–5 × 2–2.5 µm, aggregated in slimy heads.

This fungus resembles *Phialophora japonica* Iwatsu & Udagawa (Iwatsu & Udagawa 1985) and *P. taiwanensis* Matsush. (Matsushima 1983) in conidial morphology. However the former species has smaller conidia (1.5–3.5 × 1.2–2 µm), and the latter has larger (4.5–7 × 2–2.8 µm), darker conidia.

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